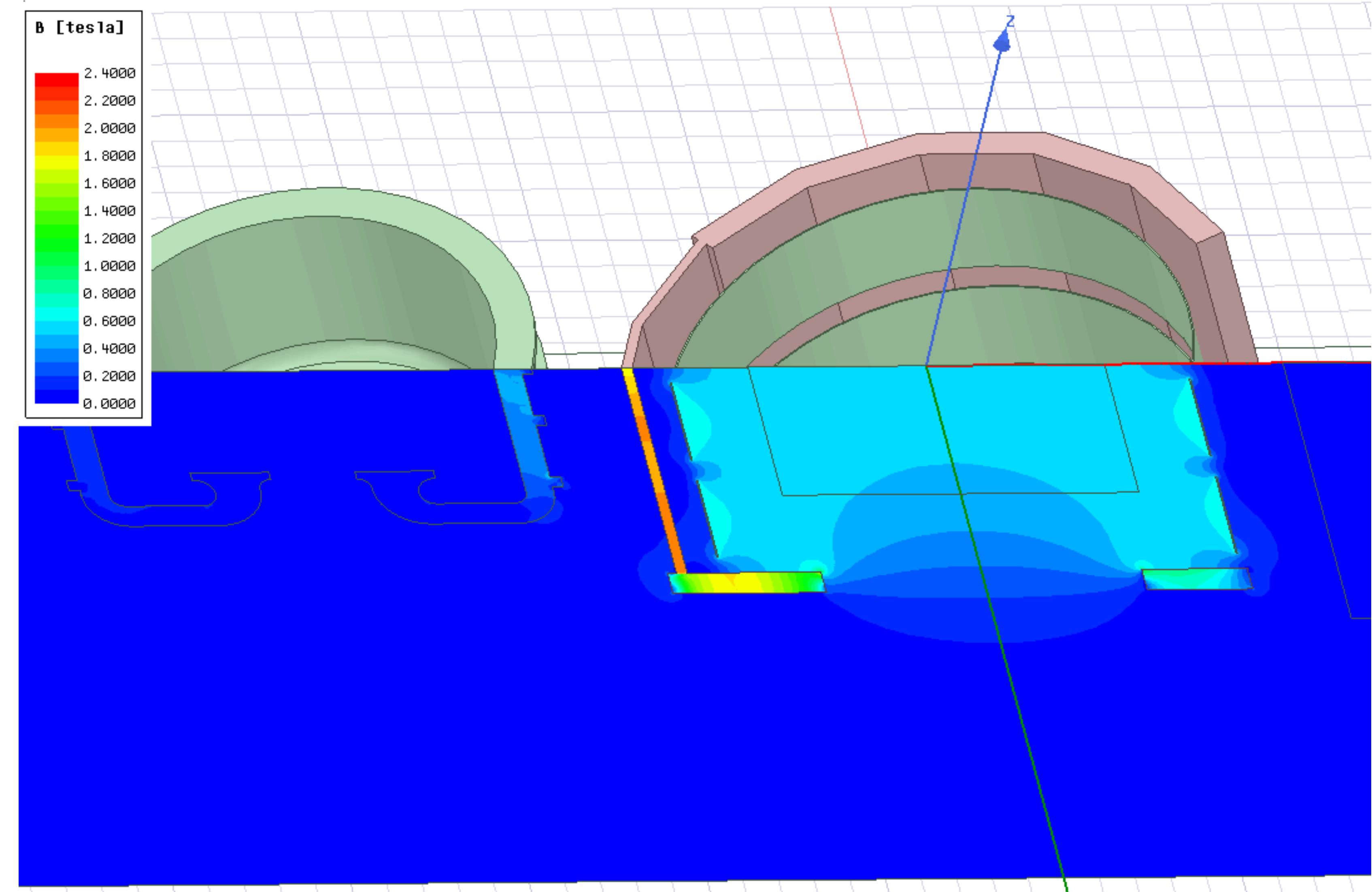


SPY@DND magnetic analysis

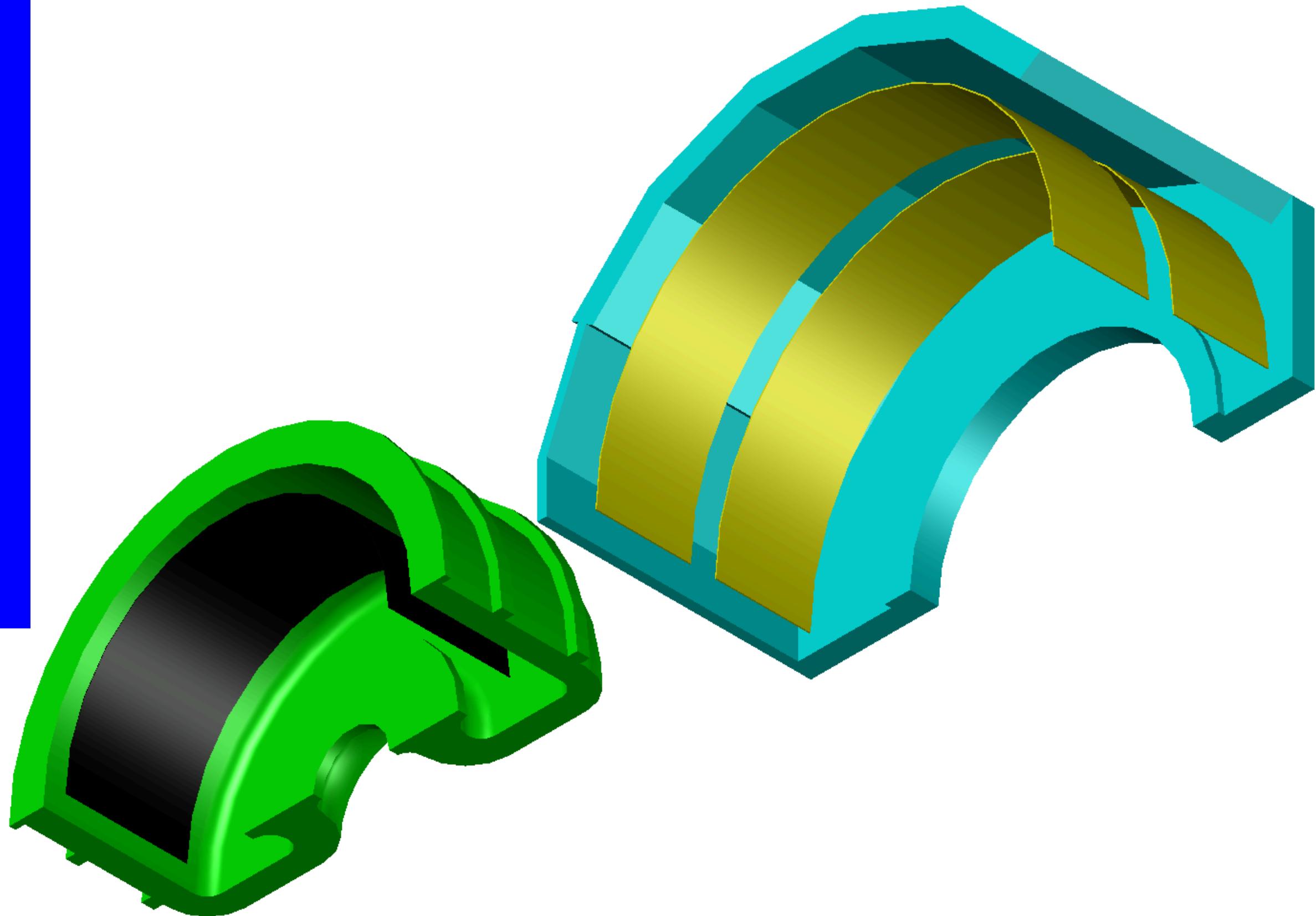
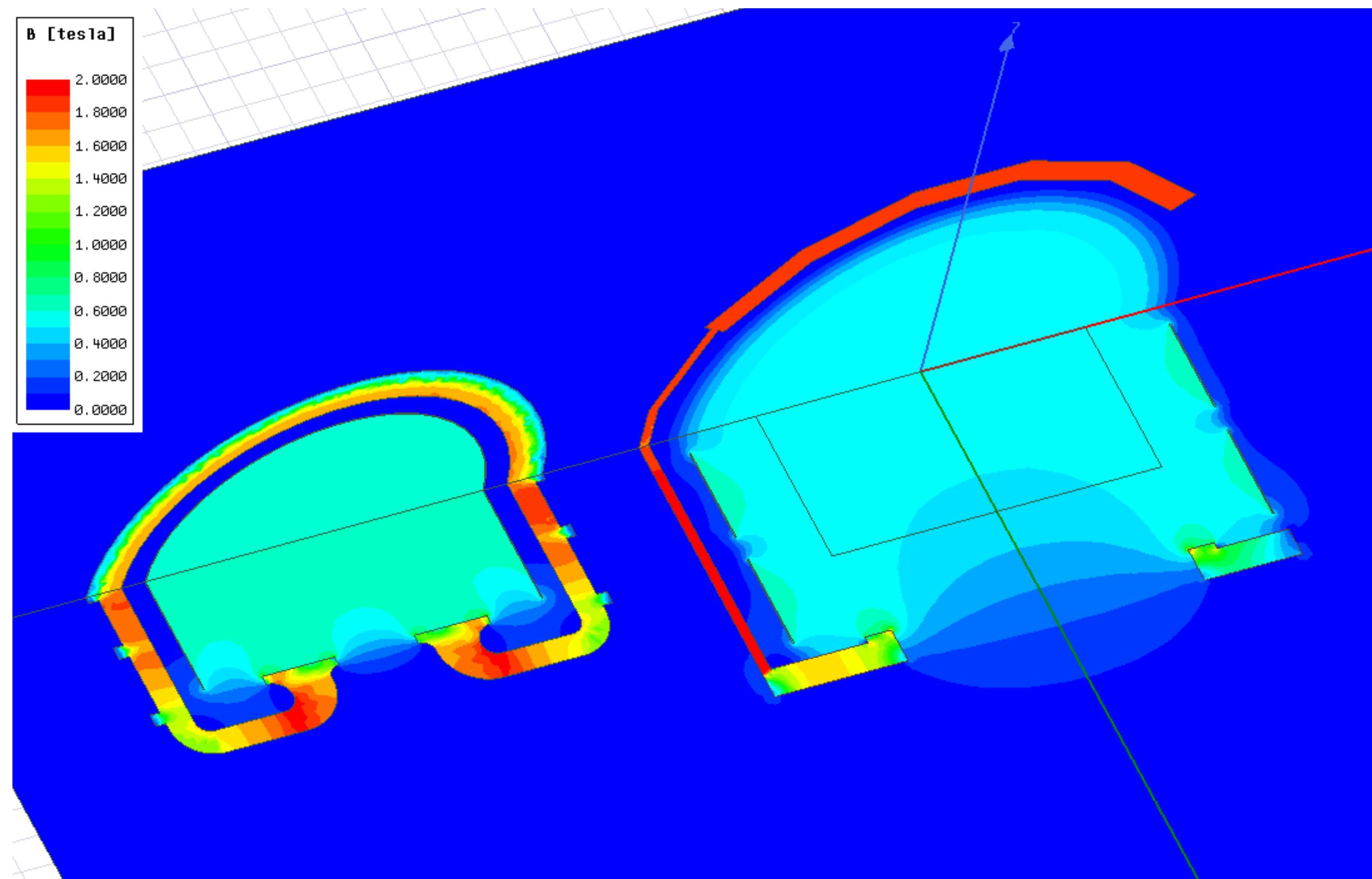
Andrea Bersani

Solid yoke, 16 sides: SPYDND13

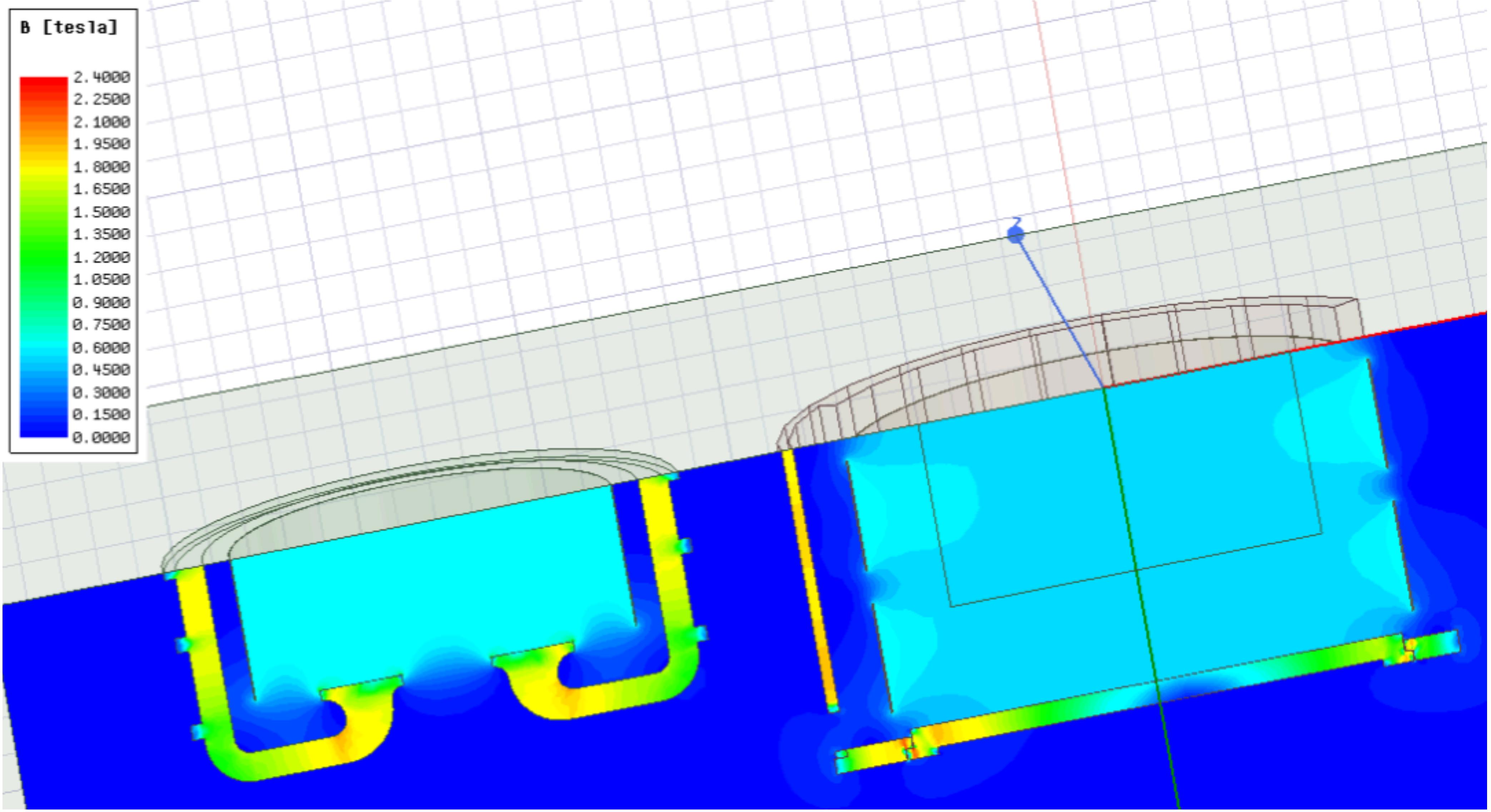
- ~ Window towards LArTPC
- ~ Thin yoke towards SAND
 - ~ second layer kept
- ~ Thick iron yoke elsewhere
- ~ Smaller hole on end-caps
- ~ Non laminated yoke



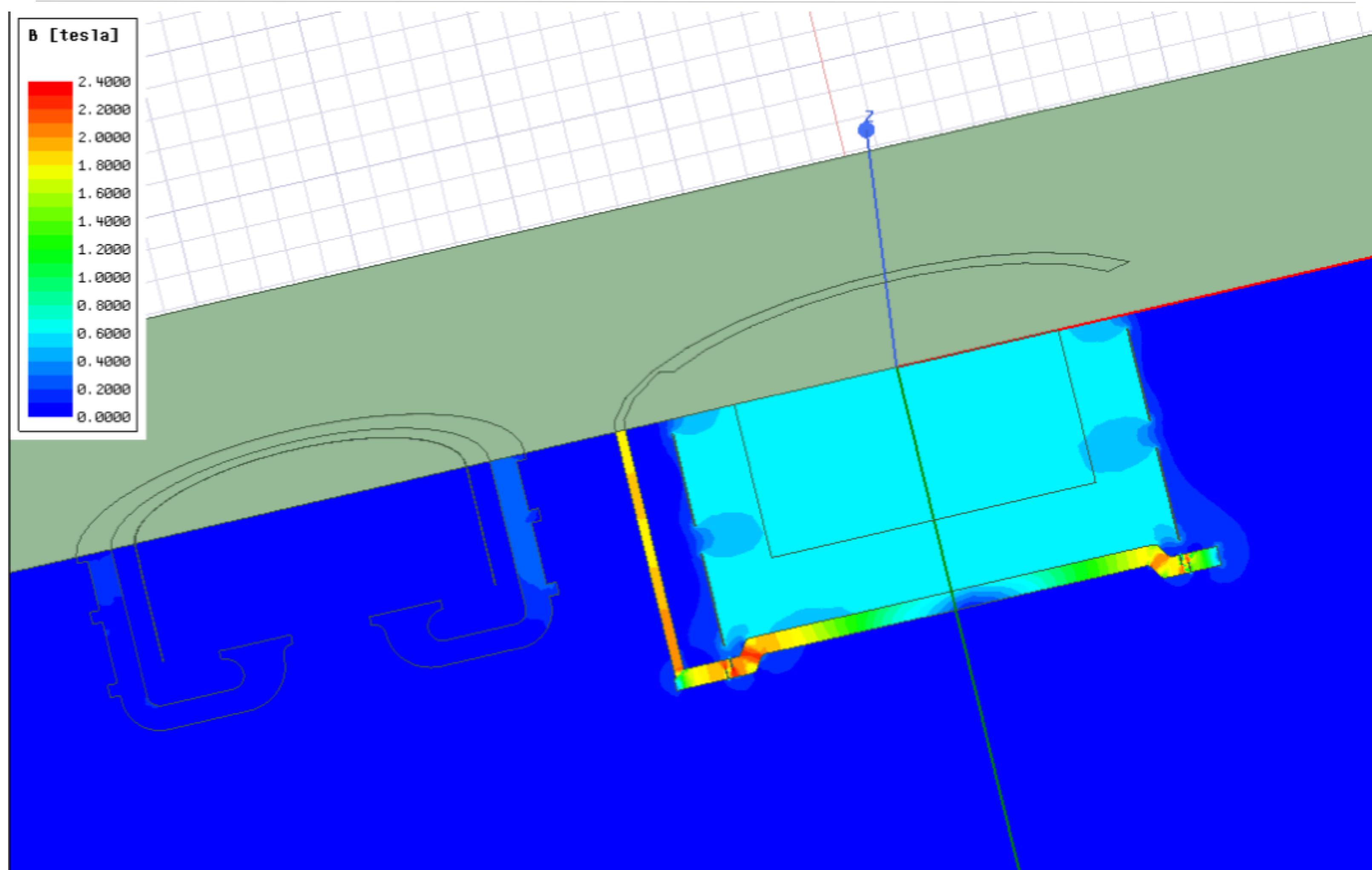
SPYDND15



SPYDND18

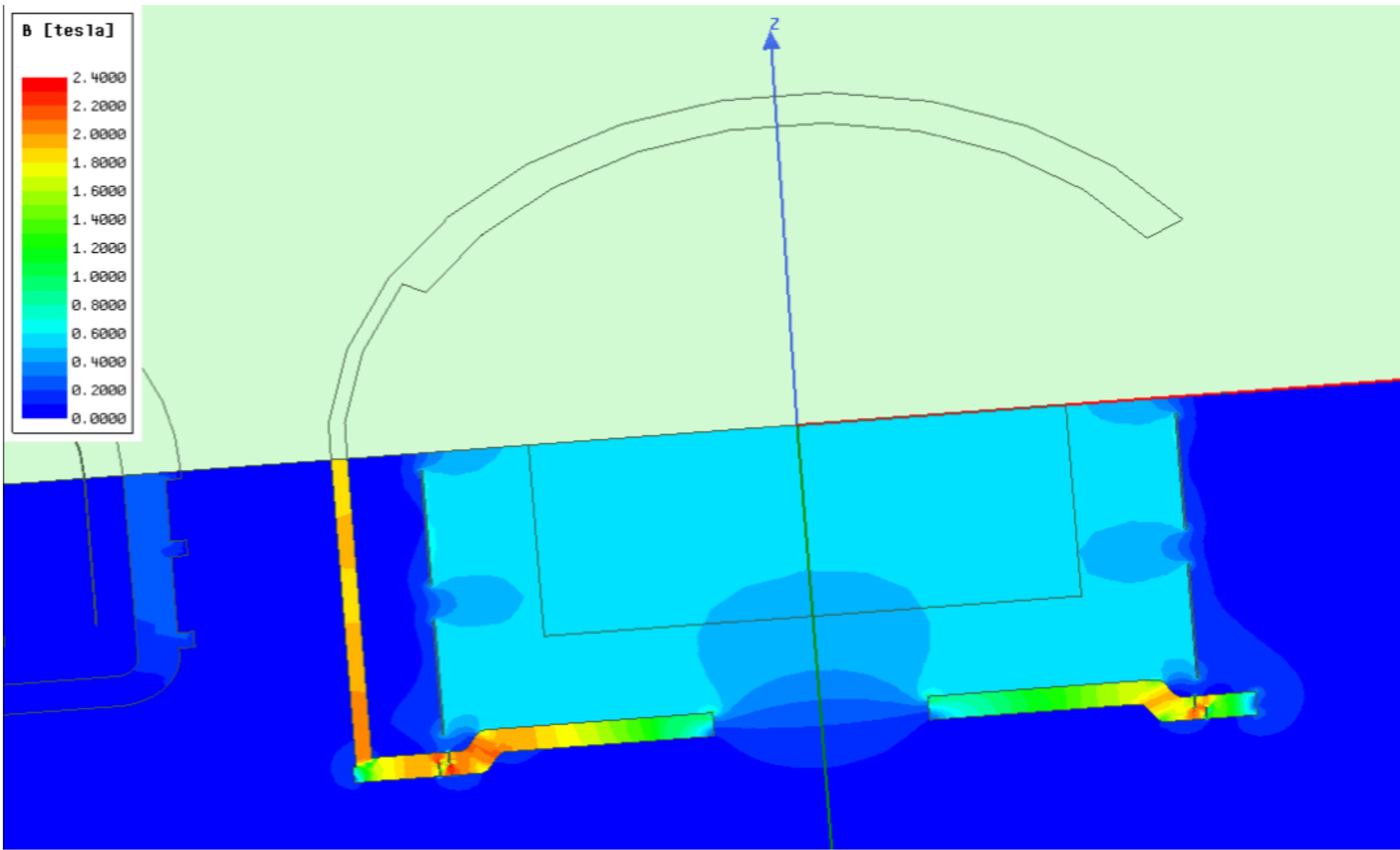


SPYDND19



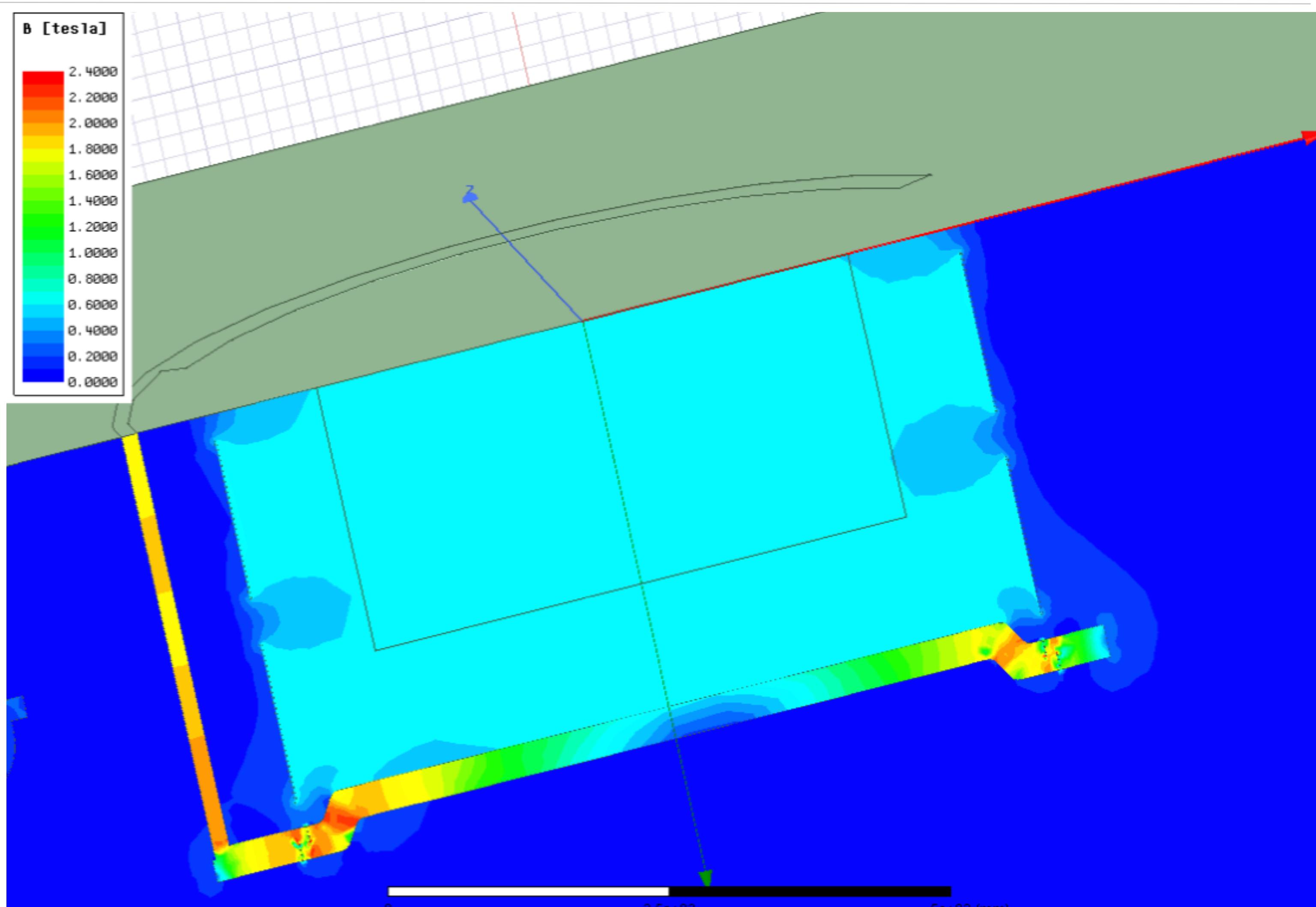
As received from Don

SPYDND19b



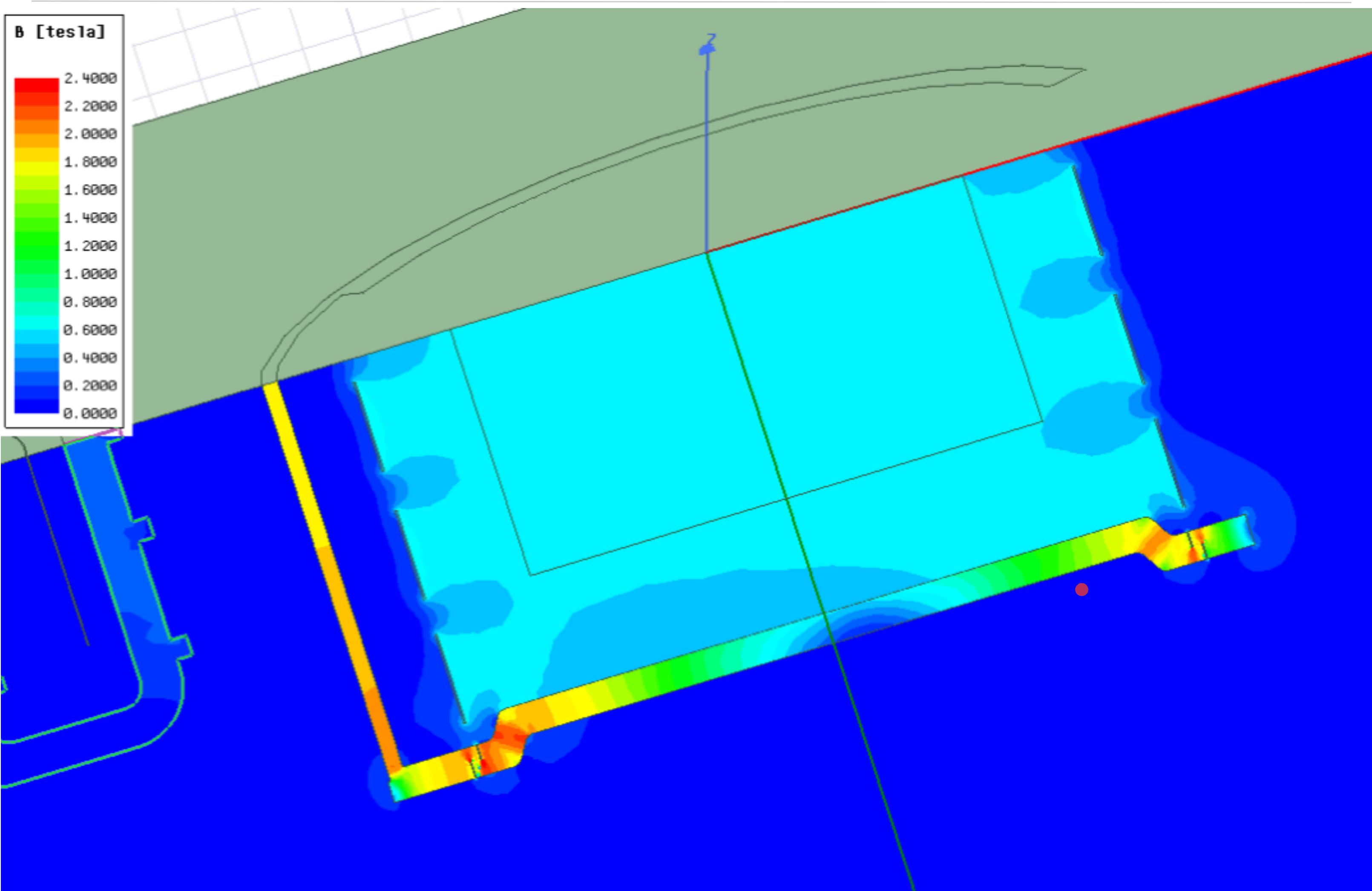
↗ Opening in the end-cap (1 m radius)

SPYDND19c



↗ Optimised coil spacing

SPYDND19d



↗ Six sub-coils instead of four

SPYDND19

	SPYDND13	SPYDND15	SPYDND18	SPYDND19	SPYDND19a	SPYDND19b	SPYDND19c
Bmin on TPC	0.4689 T	0.4655 T	0.4845 T	0.4973 T	0.4815 T	0.4979 T	0.4998 T
Bmax on TPC	0.5497 T	0.5507 T	0.5108 T	0.5227 T	0.5237 T	0.521 T	0.5098 T
Force along beam	102 kN	92 kN	128 kN	205 kN	200 kN	200 kN	200 kN
Force along axis	0.94 MN	0.72 MN	0.89 MN	0.59 MN	<u>0.39 MN (?)</u>	0.49 MN	0.51 MN
Total Current	3.8 MA turn	3.8 MA turn	3.46 MA turn	3.4 MA turn	3.4 MA turn	3.4 MA turn	3.36 MA turn
Stored energy	42.8 MJ	NA	47 MJ	34 MJ	34 MJ	34 MJ	34 MJ
Force on SAND	36 kN	24 kN	10 kN	14 kN	14 kN	~ 15-20 kN	13 kN

- ↪ Force along beam: force felt by the 4 coils pointing towards SAND
- ↪ Force along axis: force felt by 2 coils pointing towards the other 2 coils
- ↪ Force on SAND: force felt by SAND yoke, generated by stray field

